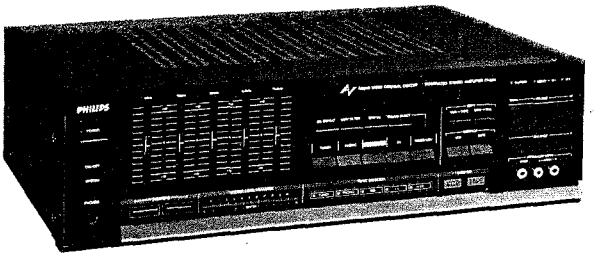
Amplifier 70FA569/00R/05R

Service
Service
Service



Service Manual

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(GB)
Safety regulations require that the set be restored to its original condition and that parts which are identical with those specified be used.

(NL)
Veiligheidsbepalingen vereisen, dat het apparaat in zijn oorspronkelijke toestand wordt teruggebracht en dat onderdelen, identiek aan de gespecificeerde worden toegepast.

(D)
Bei jeder Reparatur sind die geltenden Sicherheitsvorschriften zu beachten. Der Originalzustand des Geräts darf nicht verändert werden für Reparaturen sind Original-Ersatzteile zu verwenden.

(I)
Le norme di sicurezza esigono che l'apparecchio venga rimesso nelle condizioni originali e che siano utilizzati pezzi di ricambiago identici a quelli specificati.

(F)
Les normes de sécurité exigent que l'appareil soit remis à l'état d'origine et que soient utilisées les pièces de rechange identiques à celles spécifiées.

Documentation Technique Service Dokumentation Documentazione di Servizio Huolte-Ohje Manual de Servicio Manual de Serviçio

PHILIPS

"Pour votre sécurité. ces documents doivent être utilisés par des spécialistes agrées. seuls habilités à réparer votre appareil en panne".

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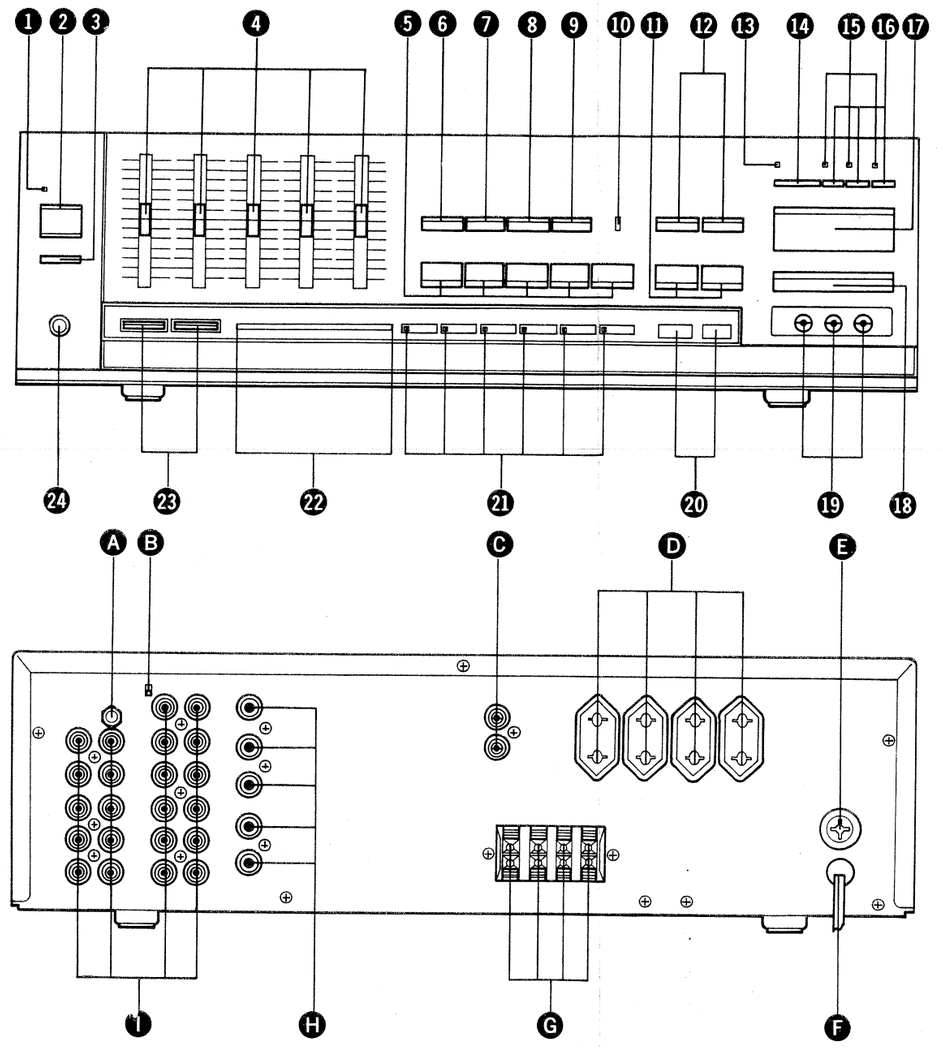
SPECIFICATION	Nominal value	Typical value
General		
Mains voltage	: 220V ~ (/00R) : 240V ~ (/05R)	: 220V ~ (/00R) : 240V ~ (/05R)
Mains frequency	: 50 – 60 Hz	: 50 – 60 Hz
Power consumption	: 270W max	: 270W max
Dimensions (WxHxD)	: 420 x 118 x 260 mm	: 420 x 118 x 260 mm
Weight	: 7.8 kg	: 7.8 kg
Amplifier		
Output power	: 65W in 8Ω (IEC)	: 65W in 8Ω (IEC)
Distortion		
T.H.D.	: ⩽ 0.3% at 1 kHz : ⩽ 0.3% at 63 Hz–12.5 kHz (IEC)	: ⩽ 0.01% at 1 kHz : ⩽ 0.3% at 65 Hz–12.5 kHz (IEC)
Intermodulation	: ⩽ 0.3% at 60/7000 Hz 4:1	: ⩽ 0.3% at 60/7000 Hz 4:1
Frequency characteristic		
Phono input, Other inputs } tone control neutral	: From 20 Hz – 20 kHz ±1.5 dB (IEC)	: from 30 Hz – 20 kHz ±0.5 dB (IEC)
	: from 20 Hz – 20 kHz ±2 dB	: from 20 Hz – 20 kHz ±1 dB
Frequency equalizer control	: at 50 Hz +10 dB to –10 dB ±2 dB	: at 50 Hz +10 dB to –10 dB
	: at 200 Hz +10 dB to –10 dB ±2 dB	: at 200 Hz +10 dB to –10 dB
	: at 800 Hz +10 dB to –10 dB ±2 dB	: at 800 Hz +10 dB to –10 dB
	: at 3.2 kHz +10 dB to –10 dB ±2 dB	: at 3.2 kHz +10 dB to –10 dB
	: at 12.8 kHz +10 dB to –10 dB ±2 dB	: at 12.8 kHz +10 dB to –10 dB
Low filter	: at 50 Hz –3 dB ±1.5 dB	: at 50 Hz –3 dB
Signal/noise ratio weighted (A-curve)		
Phono input	: for 65W output ⩾ 77 dB (IEC)	: for 65W output ⩾ 77 dB (IEC)
Other inputs	: for 65W output ⩾ 93 dB (IEC)	: for 65W output ⩾ 95 dB (IEC)
Channel separation	: at 1000 Hz ⩾ 45 dB	: at 1000 Hz ⩾ 45 dB
	: at 250 Hz – 10 kHz ⩾ 35 dB	: at 250 Hz – 10 kHz ⩾ 35 dB
Input sensitivity		
Audio		
Phono	: 2.5 mV at 47 kΩ	: 2.5 mV at 47 kΩ
Tuner/CD/Tape	: 150 mV at 25 kΩ	: 150 mV at 25 kΩ
Sound pro.	: 150 mV at 90 kΩ	: 150 mV at 90 kΩ
Other audio inputs	: 150 mV at 25 kΩ	: 150 mV at 25 kΩ
Other video inputs	: 150 mV at 25 kΩ	: 150 mV at 25 kΩ
Video		
TV	: 1.0 Vp-p at 75Ω	: 1.0 Vp-p at 75Ω
Video	: 1.0 Vp-p at 75Ω	: 1.0 Vp-p at 75Ω
VCR	: 1.0 Vp-p at 75Ω	: 1.0 Vp-p at 75Ω
Outputs		
Tape (Audio)	: 400 mV at 1 kΩ (Phono 7.75 mV 1 kHz input)	: 400 mV at 1 kΩ (Phono 7.75 mV 1 kHz input)
VCR/Video (Video)	: 1.0 Vp-p at 75Ω	: 1.0 Vp-p at 75Ω

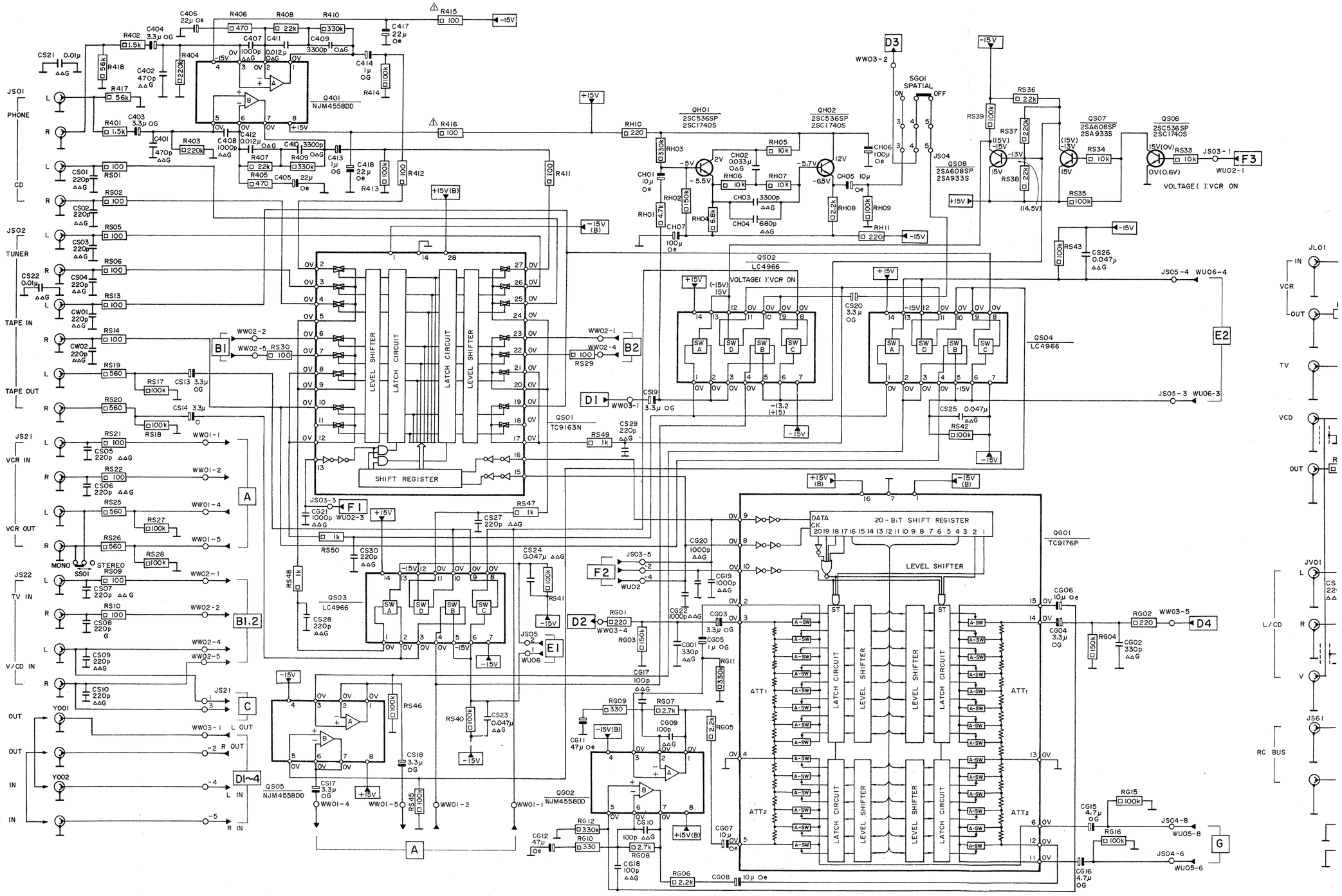


CONNECTIONS AND CONTROLS

1	Mains indicator	DT05
2	Mains switch	S001
3	System on/off switch	SU15
4	Equalizer control	RE10~RE14
5	Function switch	SU01~SU05
6	EQ defeat switch	SG02
7	Low filter switch	SG03
8	Spatial switch	SG01
9	Sound inject switch	SU17
10	Sound inject indicator	DU15
11	Monitor switch	SU06, SU16
12	Copy switch	SU18, SU19
13	Muting indicator	DU37
14	Muting switch	SU14
15	Memory indicator	DU34
16	Memory switch	SU11~SU13
17	Volume switch	SU07, SU08
18	Balance switch	SU09, SU10
19	Video/CDV input	JV01
20	Monitor indicator	VU01, VU02
21	Input indicator	DU10~DU14
22	Volume level/balance indicator	DU23~DU33
23	LS switch	SS51
24	Headphone socket	JS51
A	Ground terminal	J031
B	Mode switch	SS01
C	Remote control bus	JS61
D	AC outlet	J021~J024
E	Fuse holder	J001
F	Mains cord	W001
G	LS output	J701
H	Video input/output	JL01
I	Audio input/output	JS01, JS02, JS21~JS23

SCHEMATIC DIAGRAM

R	R417 R418 R401 ~ R404 R405 ~ R410 R413 R414 R412 R415 R416 R411 RH10 RH01 RH03 RH02 RH04 RH05 ~ RH07 RH08 RH09 RH11 RS42 RS39 RS36 RS37 RS38 RS43 RS35 RS34 RS33
	RS01 RS02 RS05 RS06 RS09 RS10 RS13 RS14 RS17 ~ RS22 RS25 ~ RS28 RS30 RS45 ~ RS48 RS50 RS40 RS41 RS49 RS29 RG01 RG03 RG05 ~ RG12 RG15 RG04 RG16 RG02
C	CS21 CS22 C401 ~ C404 C406 C405 C407~C414 C417 C418 CG17~ CG20 CS19 CH01 CH07 CH02 ~ CH04 CS20 CH05 CH06 CS25 CS26 CS11 C
	CS01~ CS10 CW01 CW02 CS13 CS14 CG21 CS17 CS27~CS30 CS18 CS23 CS24 CS29 CG12 CG11 CG22 CG10 CG09 CG01 CG05 CG03 CG15 CG07 CG08 CG06 CG15 CG04 CG16 CG02 CS31 C
Q – D	Q401 QS05 QS01 QS03 QG02 QH01 QS02 QH02 QG01 QS04 QS08 QS07 QS06
S	SS01



SCHEMATIC DIAGRAM

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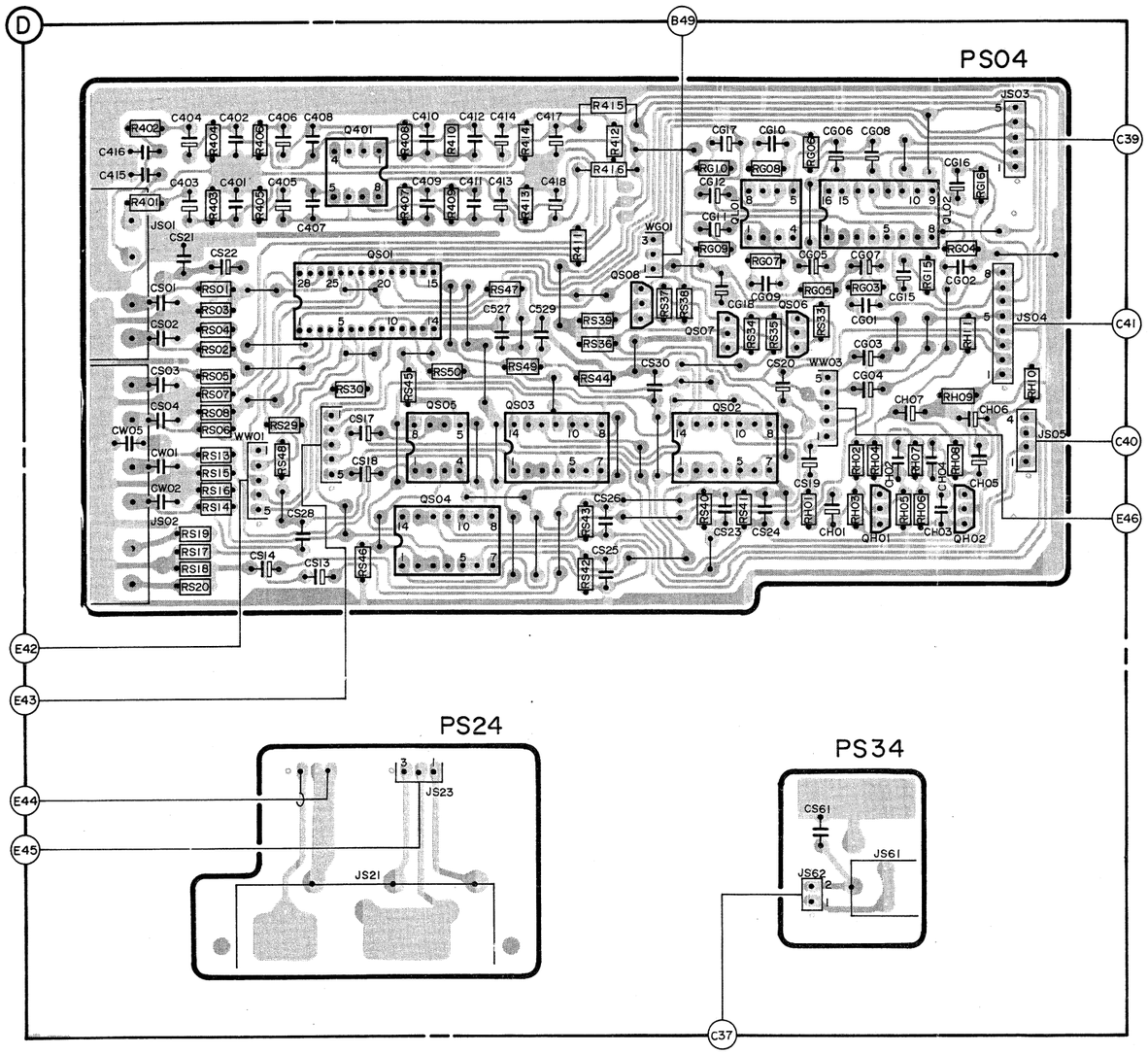
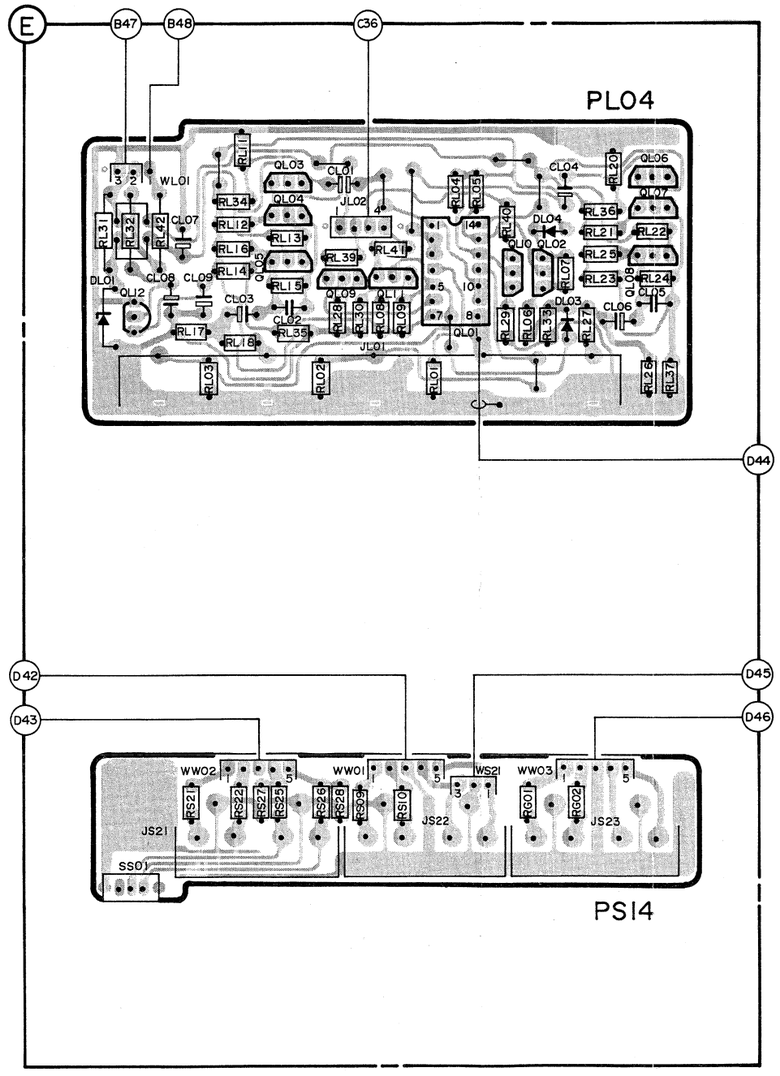
WIRING DIAGRAM

R	R401~R416 RS45 RS50 RS47 RS49 RS44 RS33~RS39 RG03~RG10 RGI5 RGI6	RL31 RL32 RL42 RLI1~RLI8 RL34 RL39 RL41 RL08 RL09 RL04 RL05 RL40 RL33 RL07 RL33 RL20~RL27
	RS01~RS09 RSI3~RS20 RS30 RS46 RS40~RS43 RH01~RHII	RS21 RS22 RL03 RL35 RL02 RS25~RS28 RS09 RSI0 RL28 RL30 RL01 RL29 RL06 RG01 RG02 RL37
C	CS21 CS22 C401~C418 CSI7 CSI8 C527 C529 CS30 CG05~CGI2 CGI8 CG01~CG04 CGI6	CL07~CL09 CL04~CL06
	CW05 CS01~CS04 CW01 CW02 CSI4 CSI3 CS28 CS23~CS26 CGI7 CS20 CS19 CH01~CH07 CGI5	CL01~CL03
D—Q	Q401 QS01~QS05 QS07 QS06 QH01 QH02	DL01 QLI2 QL03~QL05 QL09 QLI1 QL01 QLI0 QL02 DL04 DL03 QL06~QL08
S		SS01





Idling Curren

SK...

SWITCH

C

NOTE:
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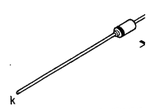
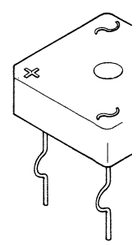
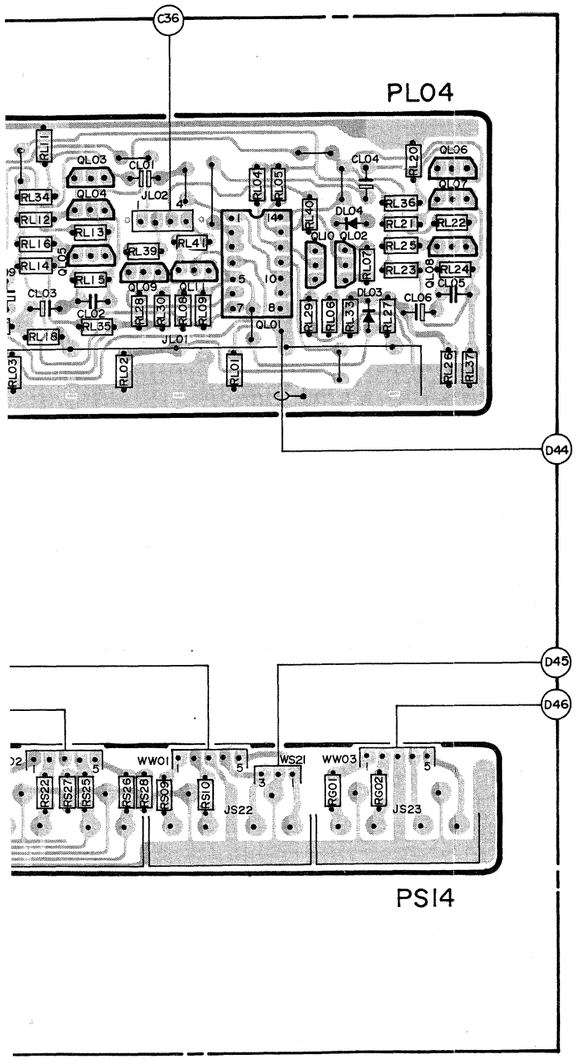
Semiconductor Layo



1SS133
1SS176
MA165



RLII~RL18 RL34 RL39 RL41 RL08 RL09 RL04 RL05 RL40 RL33 RL07 RL33 RL20~RL27
RL03 RL35 RL02 RS25~RS28 RS09 RS10 RL28 RL30 RL01 RL29 RL06 RG01 RG02 RL37
~CL09 CL04~ CL06
CL01~ CL03
QL03~QL05 QL09 QL11 QL01 QL10 QL02 DL04 DL03 QL06~QL08



Idling Current

SK... SWITCH	SIGNAL	TO	VOLUME	ADJUST	OSCILLOSCOPE	D.C. METER INDICATOR
			Min.	Lch R735		Lch TP1(+), TP3(–) DC4mV (20mA)
				Rch R736		Rch TP2(+), TP4(–) DC4mV (20mA)

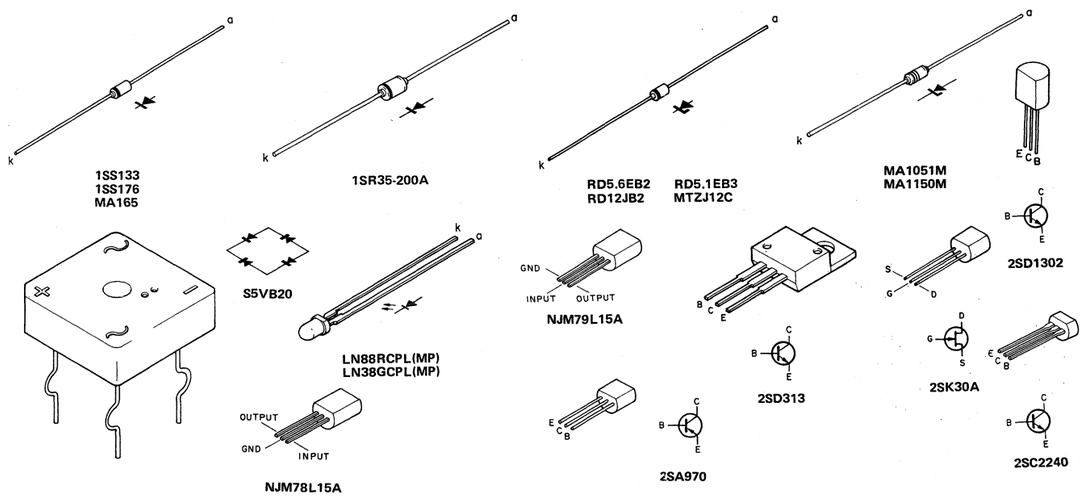
Carbon film 0.125 W or 0.2 W	70°C	5%	
Carbon film 0.25 W or 0.33 W	70°C	5%	
Metal film 0.25 W or 0.33 W	70°C	5%	
Carbon film 0.5 W	70°C	5%	
Carbon film 0.67 W	70°C	5%	
Carbon film 1 W or 1.15 W	70°C	5%	
Ⓒ Chip component			

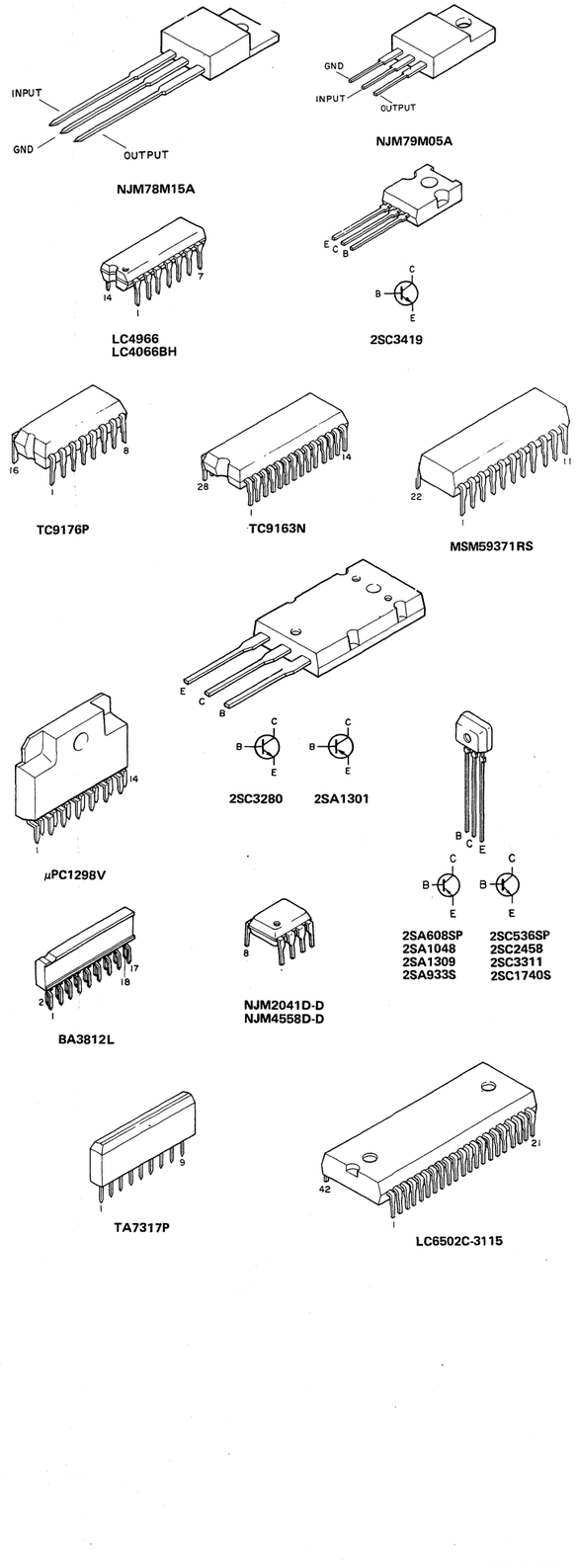
Ceramic plate Tuning ≤ 120 pF NP.0		2%
Others		–20/+80%
Polyester flat foil		10%
Metalized polyester flat film		10%
Polyester flat foil small size (Mylar)		10%
Polysterene film/foil		1%
Tubular ceramic		
Miniature single		
Subminiature tantalum		± 20%

*a	2.5 V
b	3.15 V or 4 V
c	6.3 V
d	10 V
e	16 V
f	25 V
g	40 V
h	63 V
j	100 V
l	125 V
m	150 V
n	160 V
q	200 V
r	250 V
s	300 V
t	350 V
u	400 V
v	500 V
w	630 V
x	1000 V
A	1.6 V
B	6 V
C	12 V
D	15 V
E	20 V
F	35 V
G	50 V
H	75 V
I	80 V

NOTE:
Some withstand voltages of the condensers are shown in both numerical value and symbol on the circuit diagram. If withstand voltage shown in numerical value is different from that in symbol for a condenser, both are applicable.

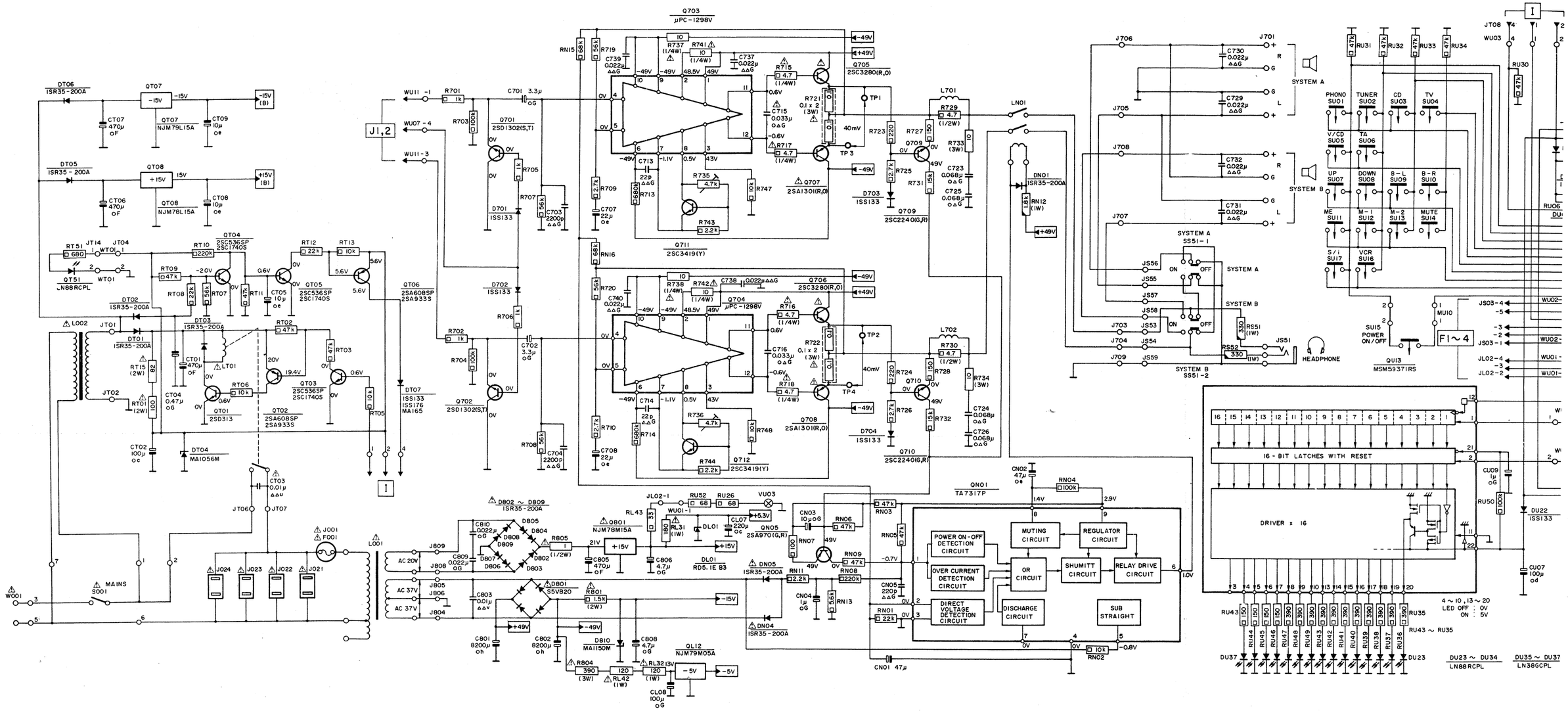
Semiconductor Layout





SCHEMATIC DIAGRAM

R	RT51 RT09 RT08 RT10 RT07 RT11 RT02 RT12 RT13 R701 R703 R705 R707 RN15 R719 R709 RN16 R713 R737 R741 R735 R743 R747 R715 R717 R721 R723 R725 R727 R731 R729 R733 RN12 RW92 RW91 RU31 RU32 RU33 RU34 RU30 RU RT01 RT15 RT06 RT03 RT05 R702 R704 R706 R708 R805 R801 R720 R710 R714 R738 R742 R736 R744 R804 RL42 RL31 RL32 RL43 RU52 RU26 R748 R716 R718 RN11 R722 RN05 ~ RN09 RN13 RN03 RN01 R724 R726 R728 R732 R730 R734 RN04 RN02 RU35 ~ RU43 RU50 RU51 RU
C	CT06 CT07 CT04 CT01 CT08 CT09 CT05 C735 C701 C703 C739 C740 C707 C713 C737 C738 C715 C723 C725 C729 ~ C732 CT02 CT03 C809 C810 C803 C801 C702 C704 C802 C708 C805 CL08 C808 C714 C803 CL07 C716 CN03 CN04 CN01 CN05 C724 C726 CN02 CU09 CU07
Q - D - V	DT05 DT06 QT51 QT07 QT08 DT02 DT01 DT04 DT03 QT01 QT04 QT02 QT05 QT03 QT06 DT07 Q701 Q702 D701 D702 D802 ~ D809 D801 DL01 Q801 D810 QL12 VU03 Q703 Q704 Q712 Q711 DN04 DN05 QN05 Q705 ~ Q710 D703 D704 QN01 DN01 QU13 DU23 ~ DU34 DU35 ~ DU37 DU22 DU04 ~ D
L - S - X	L002 S001 LT01 LN01 SS51-1 SS51-2 SU01 ~ SU17



SCHEMATIC DIAGRAM

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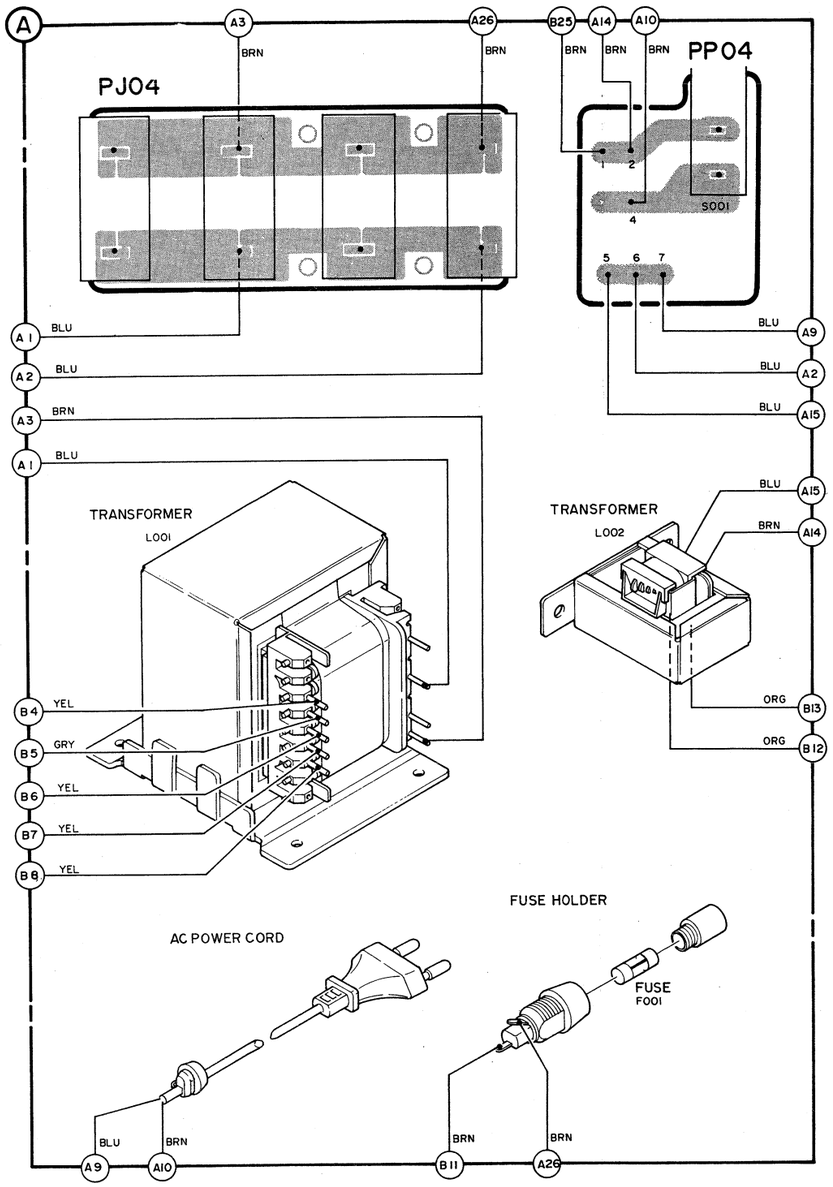
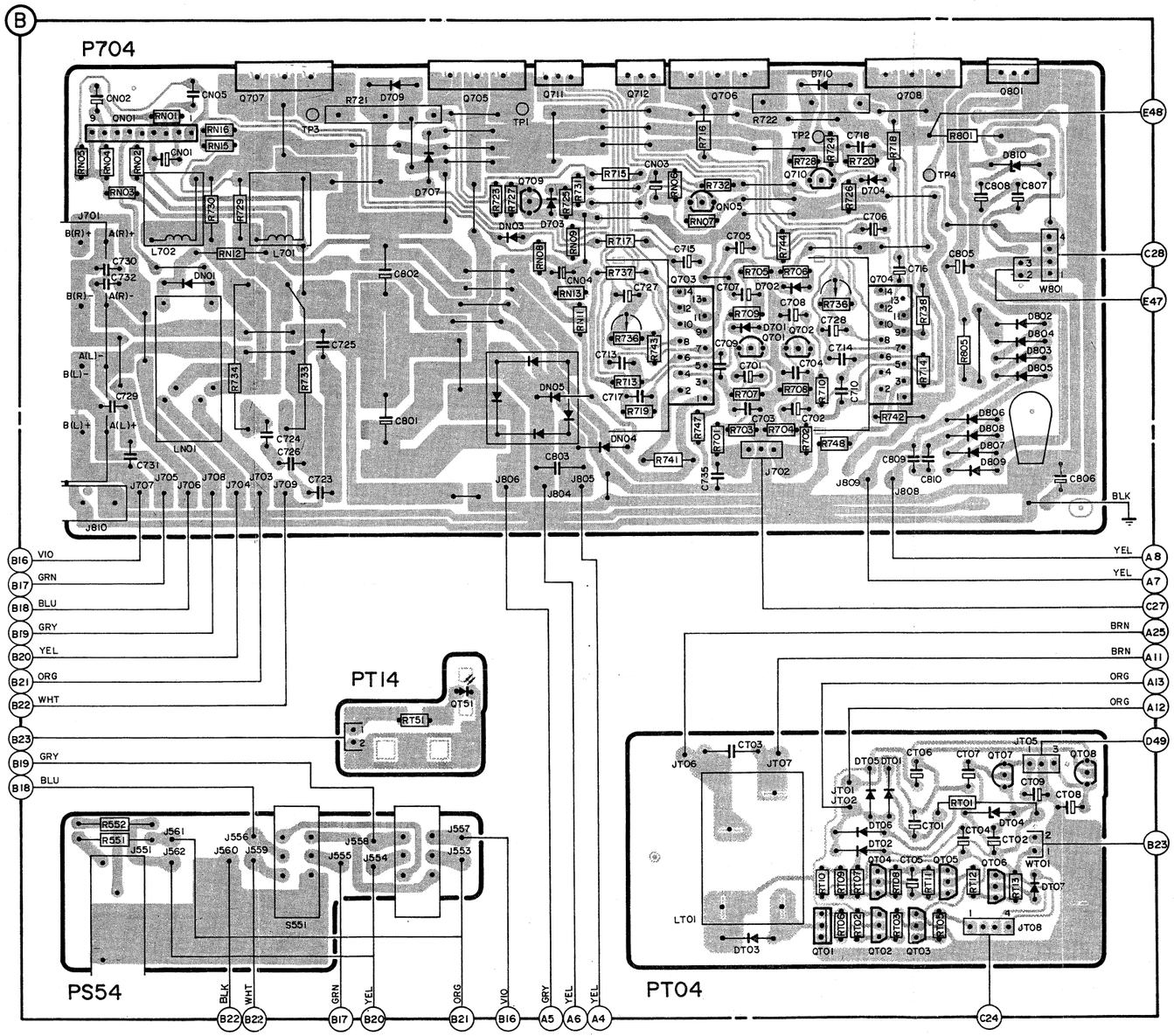
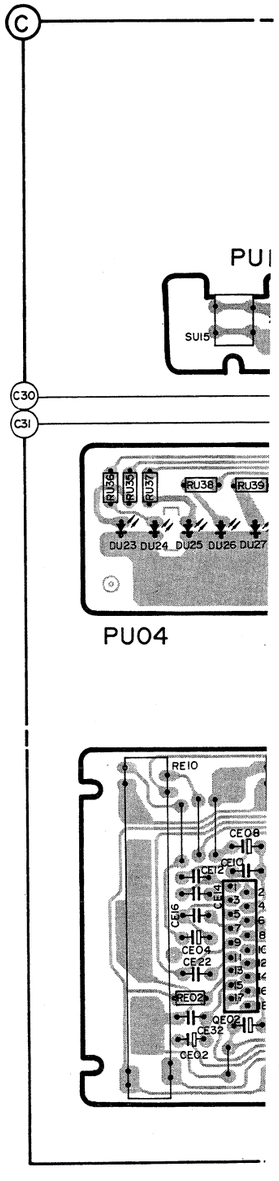
WIRING DIAGRAM

R – X	RN01∼RN05 RN16 RN15 R721 R723 R727 R725 R731 R715∼R719 RN06 RN07 R732 R722 R728 R724 R726 R801 R738 R714 R805 RU35∼RU40 R552 R551 R730 RN12 R729 R734 R733 RT51 RN08 RN13 RN11 RN09 R737 R736 R713 R743 R741 R747 R701∼R710 R736 R748 RT01∼RT13 RE10∼RE14 RU01∼RE09
C	CN02 CN01 CN05 C723∼C726 C802 C801 C803 CN04 C727 CN03 C701∼C710 C714 C718 C706 C729∼C732 C713 C717 C715 C735 C728 CT01∼CT10 C716 C805∼C810 CE01∼CE05 C
Q – D	QN01 DN01 Q707 D709 D707 Q705 QT51 DN03 DN05 Q 709 D703 Q711 Q712 Q706 Q701∼Q704 QT01∼QT08 DT01∼DT07 D701 D702 D710 D704 QT07 QT08 D802∼D810 DU23∼DU33 QE02
L – F – S – T	L001 L002 F001 S001 L702 L701 S551 TP1 LT01 TP2 TP4 SU15







WIRING DIAGRAM

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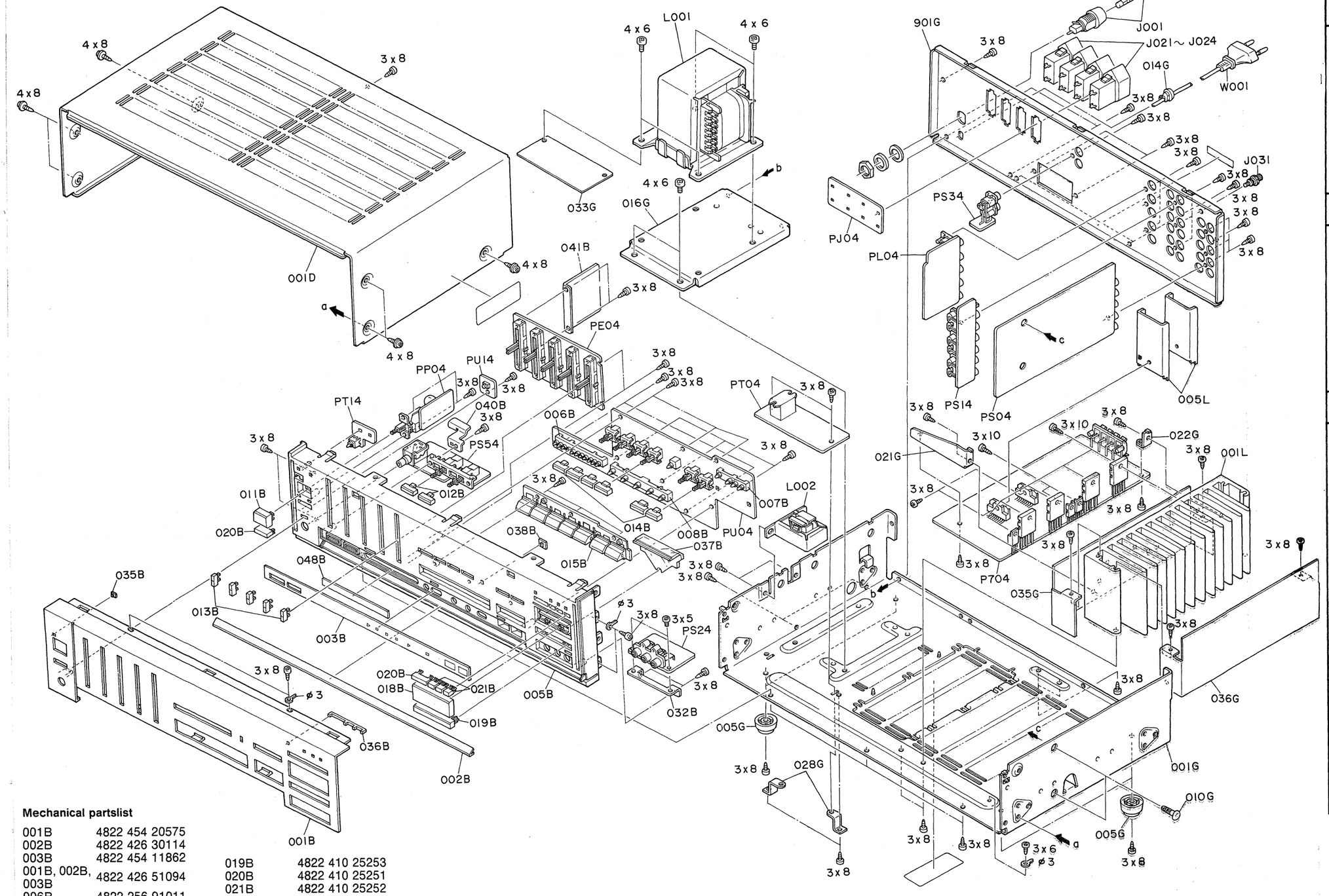
EXPLODED VIEW



Mechanical partslist

001B	4822 454 20575
002B	4822 426 30114
003B	4822 454 11862
001B, 002B, 003B	4822 426 51094
006B	4822 256 91011
007B	4822 256 91012
008B	4822 256 91013
009B	4822 256 91014
011B	4822 410 25074
012B-014B	4822 410 25075
013B	4822 412 20973
015B	4822 410 25084
018B	4822 410 25146
019B	4822 410 25253
020B	4822 410 25251
021B	4822 410 25252
035B	4822 381 10845
036B	4822 381 10804
037B	4822 381 10805
038B	4822 381 10806
048B	4822 459 40577
002D	4822 502 12501
005G	4822 462 40971

Note: only the mentioned parts are normal service parts

CS 3 972

Electrical Partslist

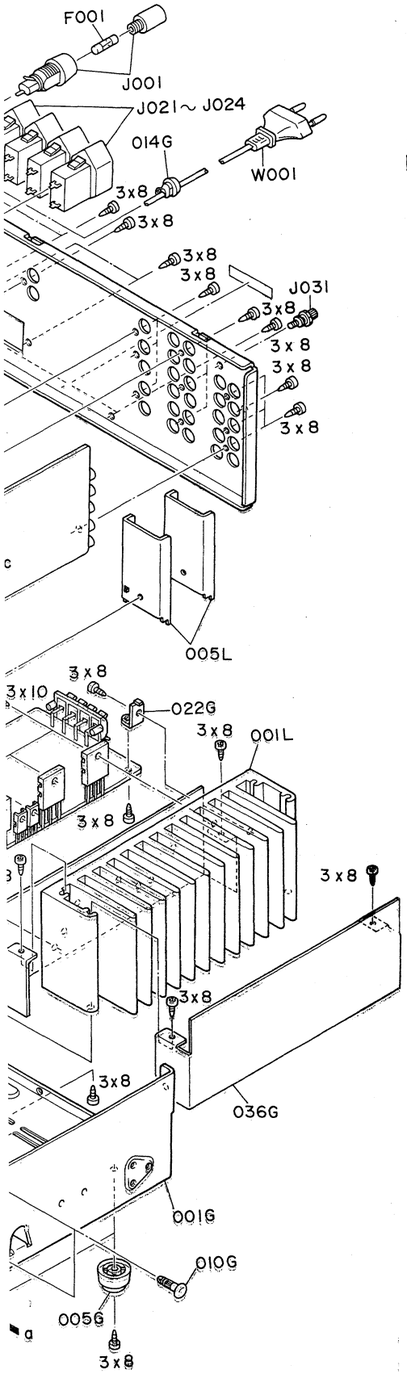
CE01, CE02	Elect. cap.	3,3 µF	50 V	4822 124 21982
CE25, CE26				
CE03, CE04	Elect. cap.	2,2 µF	50 V	4822 124 41243
C401				
CE27, CE28	Elect. cap.	47 µF	16 V	4822 124 41246
CE29				
CL02, CL05	Cer. cap.	2 pF	50 V	4822 122 40298
CT03	Cer. cap.	10 nF	400 V	4822 122 40305
CU07	Elect. cap.	100 µF	10 V	4822 124 41242
CU08	Elect. cap.	1000 µF	16 V	4822 124 22013
CU09	Elect. cap.	1 µF	50 V	4822 124 21736
C713, C714	Cer. cap.	18 pF	50 V	4822 122 40517
C801, C802	Elect. cap.	8200 µF	63 V	4822 124 41296
C803	Cer. cap.	10 nF	500 V	4822 122 30043

RE10, RE11	Var. res.	100 k		4822 105 10841
RE12				
RE13, RE14				
RL31	Res.	180 Ω	1 W	4822 116 60342
RL32, RL42	Res.	120 Ω	1 W	4822 116 60334
RT01	Res.	100 Ω	2 W	4822 116 60328
RT15	Res.	82 Ω	2 W	4822 116 60269
R721, R722	Res.	2x 0,1 Ω	3 W	4822 111 90966
R736	Var res.	4,7 k		4822 100 20524
R737, R738	Fuse res.	10 Ω	1/4 W	4822 116 60314
R741, R742				
R801	Res.	1,5 k Ω	2 W	4822 116 60339
R804	Res.	390 Ω	3 W	4822 116 60479
R805	Fuse res.	1 Ω	1/2 W	4822 116 60306

DL01	RD5.1E	4822 130 33415
DL02	MA1051M	4822 130 33383
DL03, DL04		
DT07		
DU02-DU09	ISS133	4822 130 33305
DU16-DU20		
DU22, D438		
D701-D704		
DN01, DN04		
DN05, C713		
DT02, DT03	ISR 35-200A	4822 130 32816
DT05, DT06		
D802, D809		
DT04	RD5.6E B2	4822 130 31623
DU10-DU14	LN88RCPL. MP	4822 130 33761
DU23-DU34		
DU37, QT51		
DU15, DU35	LN38GCPL.MP	4822 130 33752
DU36		
DU39, DU40	RD12 JB2	4822 130 80091
D801	S 5 V B20	4822 130 30984
D810	MA1150M	4822 130 32654

Miscellaneous

F001	Fuse T 1,6A	4822 253 30024
JL01	Jack video in/out	4822 266 30277
JS01, JS21	Jack phono/CD/tape	4822 265 30397
JS02	Jack tuner/TV	4822 265 30457
JS22, IS23	Jack TV/sound	4822 267 30493
JS51	Jack headphone	4822 267 30596
JS61	Jack remote conrol	4822 266 30232



Electrical Partslist

CE01, CE02 CE25, CE26	Elect. cap.	3,3 µF	50 V	4822 124 21982
CE03, CE04 C401	Elect. cap.	2,2 µF	50 V	4822 124 41243
CE27, CE28 CE29	Elect. cap.	47 µF	16 V	4822 124 41246
CL02, CL05	Cer. cap.	2 pF	50 V	4822 122 40298
CT03	Cer. cap.	10 nF	400 V	4822 122 40305
CU07	Elect. cap.	100 µF	10 V	4822 124 41242
CU08	Elect. cap.	1000 µF	16 V	4822 124 22013
CU09	Elect. cap.	1 µF	50 V	4822 124 21736
C713, C714	Cer. cap.	18 pF	50 V	4822 122 40517
C801, C802	Elect. cap.	8200 µF	63 V	4822 124 41296
C803	Cer. cap.	10 nF	500 V	4822 122 30043

RE10, RE11 RE12 RE13, RE14	Var. res.	100 k		4822 105 10841
RL31	Res.	180 Ω	1 W	4822 116 60342
RL32, RL42	Res.	120 Ω	1 W	4822 116 60334
RT01	Res.	100 Ω	2 W	4822 116 60328
RT15	Res.	82 Ω	2 W	4822 116 60269
R721, R722	Res.	2× 0,1 Ω	3 W	4822 111 90966
R736	Var res.	4,7 k		4822 100 20524
R737, R738 R741, R742	Fuse res.	10 Ω	1/4 W	4822 116 60314
R801	Res.	1,5 k Ω	2 W	4822 116 60339
R804	Res.	390 Ω	3 W	4822 116 60479
R805	Fuse res.	1 Ω	1/2 W	4822 116 60306

DL01	RD5.1E	4822 130 33415
DL02	MA1051M	4822 130 33383
DL03, DL04 DT07 DU02-DU09 DU16-DU20 DU22, D438 D701-D704	ISS133	4822 130 33305
DN01, DN04 DN05, C713 DT02, DT03 DT05, DT06 D802, D809	ISR 35-200A	4822 130 32816
DT04	RD5.6E B2	4822 130 31623
DU10-DU14 DU23-DU34 DU37, QT51	LN88RCPL. MP	4822 130 33761
DU15, DU35 DU36	LN38GCPL.MP	4822 130 33752
DU39, DU40	RD12 JB2	4822 130 80091
D801	S 5 V B20	4822 130 30984
D810	MA1150M	4822 130 32654

Miscellaneous

F001	Fuse T 1,6A	4822 253 30024
JL01	Jack video in/out	4822 266 30277
JS01, JS21	Jack phono/CD/tape	4822 265 30397
JS02	Jack tuner/TV	4822 265 30457
JS22, IS23	Jack TV/sound	4822 267 30493
JS51	Jack headphone	4822 267 30596
JS61	Jack remote conrol	4822 266 30232

Miscellaneous

IV01	Jack video/audio in	4822 266 30289
JO01	Fuse holder	4822 256 30233
JO21-IO24	AC conn.	4822 267 30597
J031	Ground terminal	4822 267 40505
J701	Speaker terminal	4822 267 50424
LN01	Relay output	4822 280 20193
LT01	Relay mains conn.	4822 280 70219
L001	Mains transformer	4822 146 21181
L002	Mains transformer	4822 146 21215
L701, L702	Choke coil 1UH	4822 157 51739
VU01-VU03	Lamp 8 V 50 mA	4822 134 40751
XU01	Cer filter	4822 242 71218

QE01, QE02	BA3812L equal.	4822 209 83338
OG01	TC9176P	4822 209 83785
OG02	NJM4558D-D	4822 209 83631
QL01	LC4066BH	4822 209 81801
QL12	NJM79L05	4822 209 71041
QN01	TA7317P	4822 209 83312
QS01	TC9163N	4822 209 83784
QS02-QSO4	LC4966	4822 209 83804
QS05	NJM4558DD	4822 209 83631
QT07	NJM79L15L	4822 209 71039
QT08	NJM78L15A	4822 209 71038
QU01	LM6502C-3115	4822 209 70383
QU13	MSM59371RS	4822 209 83594
Q401	NJM2041DD	4822 209 81565
Q703, Q704	UPC-1298V	4822 209 70382
Q801	NJM78M15A	4822 209 82829

QH01, QH02 QL03-QL08 QS02-QS04 QS06 QT03-QT05 QU01-QU11 QU14, QU15	C536SP	4822 130 42483
QL02 QL09-QL11 QS07, QS08 QT02, QT06 QT51, QU12	A608SP	4822 130 42715
QN05	2SA970	4822 130 42949
QS09, QS10	2SK30A	4822 130 42825
QT01	2SD313	4822 130 43323
Q701, Q702	2SD1302 S.T.	4822 130 42125
Q705, Q706	2SC3280	4822 130 60116
Q707, Q708	2SA1301	4822 130 60109
Q709, Q710	2SC2240 (GR)	4822 130 43231
Q711, Q712	C3419Y	4822 130 60117

SG01-SG03	4822 276 11892
SP01	4822 276 11891
SS01	4822 277 30866
SS51	4822 276 20424
SU01-SU06 SU16-SU17	4822 276 11559
SU07-SU14	4822 276 11657
SU17	4822 276 11945
S001	4822 276 11898